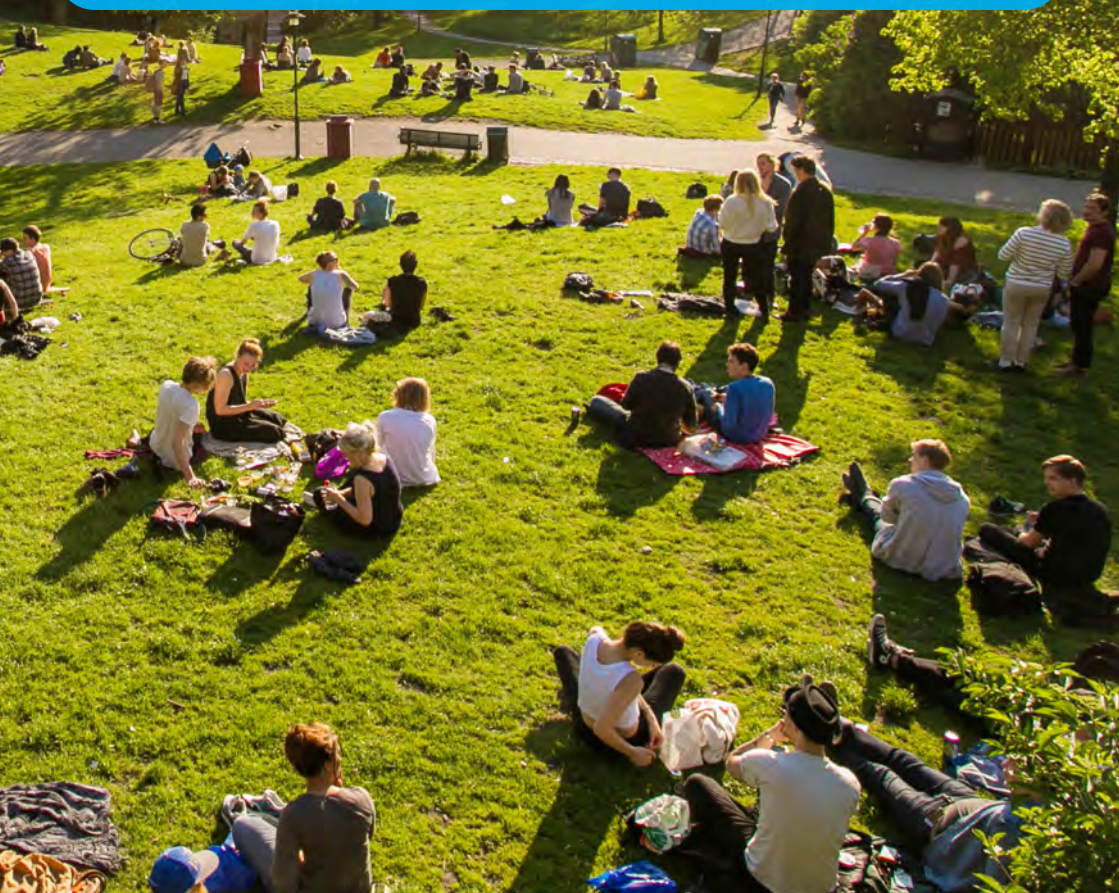


RAMBOLL

Bright ideas.
Sustainable change.

THE FUTURE STARTS WITH RENEWABLE ENERGY

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“Climate change is the defining issue of our time – and we are at a defining moment. We face a direct existential threat. If we do not change course, we risk missing the point where we can avoid runaway climate change, with disastrous consequences for people and all the natural systems that sustain us.

The transition to a cleaner, greener future needs to speed up. Our fate is in our hands.”

António Guterres

– UN Secretary-General

TURNING CHALLENGES INTO OPPORTUNITIES

Renewable sources such as wind, solar and hydro are essential components of sustainable and climate-friendly energy solutions, constituting over 16% of all energy production in the world.

As the demand for energy increases globally, so does the need for alternative and renewable energy sources that are not only independent from traditional fossil fuels but also foster sustainability without compromising on efficiency, cost-effectiveness and economic development.

While renewables offer a promising future for the energy sector and societies in general, they also require expert knowledge for their optimal development and implementation. Ramboll has worked with renewable energy for more than 30 years and backed by this experience we support our clients in a wide range of renewable energy technologies and services.

As a global leading consultant, we understand that the shift from fossil fuels to renewables can be challenging, as it involves important considerations in terms of strategy and financial investments. But with the right

knowledge and approach, challenges can be turned into growth opportunities.



RAMBOLL'S LOW-CARBON SOCIETY APPROACH

The world is moving in a more sustainable direction due to the climate change. It is becoming more and more evident to everybody – people, companies and politicians – that we cannot continue down the path that we are on. We need to change.

We help our clients navigate the green transition and the increasingly complex energy system. With our knowledge of the energy system, all of its elements and their interaction also with other sectors, we help our clients move one or more steps closer to sustainable solutions. We engage early to understand our clients' needs and challenges, leading to new and better solutions.

Our role as a trusted change partner supporting the positive direction that the world is moving in has an impact on the way we run our business and sets a beacon for our organisation and our investments.



We have a holistic and integrated approach to the energy sector and its interaction with other sectors combined with deep technical insight.



We always think sustainability into our solutions. Is there some way to make them greener, better for the environment, less resource demanding?

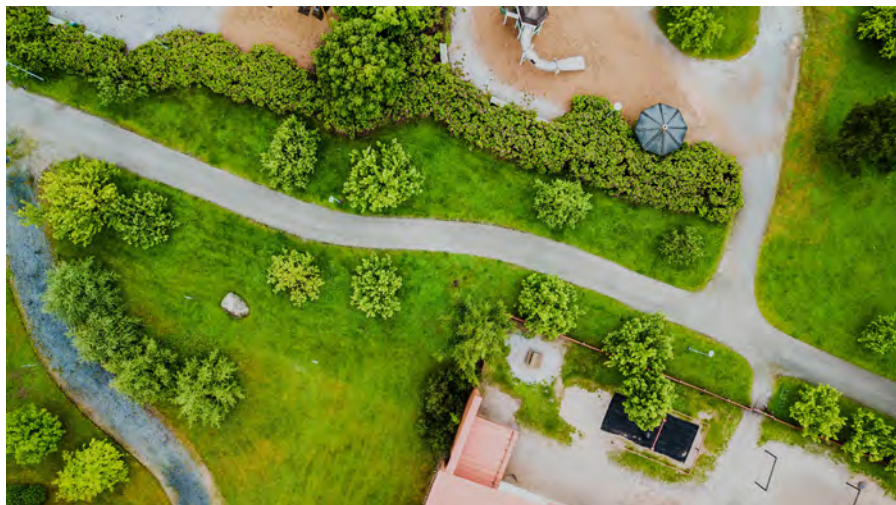


We are on top of the technological development in the energy sector and drive innovation and digitalisation.



We work to influence policy and framework conditions to pave the way for smart energy solutions.

GREEN TRANSITION



The greatest share of the world's energy consumption currently comes from fossil fuels. The ongoing shift to renewables is accompanied by a need for improved energy infrastructure, efficiency and change of fuels – all of this while balancing social, economic and environmental considerations.

Here is how Ramboll does it:

- We involve key stakeholders early in the project to create the most efficient and cost-effective energy vision and strategy – both for our clients and society.
- We are experts in the design of integrated energy systems that include power grid, district heating and cooling grid, and gas grid. We are in the forefront of the development of new technologies such as Power-to-X.
- We assist clients in developing their energy facilities in the city as it facilitates the use of up to 100% of the energy from surplus heat.
- We are knowledgeable in technologies that reduce environmental impacts and increase the efficiency of oil & gas solutions, such as flare gas recovery systems and structural health monitoring systems.
- We possess the full range of competencies required to convert power plants from coal to biomass while increasing energy production.



Ramboll has performed a study entitled 'Copenhagen CO₂ neutral 2025' to help the city of Copenhagen reach its ambitious climate goal of creating a high standard, sustainable urban life for its inhabitants.

The report highlights the need for innovative thinking in relation to district energy infrastructure and electricity based on renewable energy sources such as offshore wind energy to the citizens' use of electrical appliances, and means of transportation etc. in a cost-efficient way.

Ramboll concluded that it is possible and realistic for Copenhagen to become carbon neutral by 2025 as the city enjoys special conditions making a great reduction in CO₂ emissions possible.

DECARBONISING TECHNOLOGIES

Decarbonising the energy sector is one of our top priorities as companies and governments make strong commitments to achieve ambitious carbon reduction targets. Ramboll's experts are fully equipped to advise on a full spectrum of decarbonising technologies including Power-to-X, carbon capture utilisation & storage, and electrification. While acknowledging that the transition to net-zero is a different journey for everyone, our solutions will bring our clients one or more steps closer to a renewable and more balanced energy system.

BORNHOLM BUNKER HUB, DENMARK

Bornholm will play a central role in the green transport corridor where several green fuelling stations using hydrogen in the form of ammonia or methanol will serve more than 60,000 ships crossing the Baltic Sea every year. Ramboll and its partners are studying how local Power-to-X solutions can support the demand for green fuels.



HYDROGEN AND POWER-TO-X

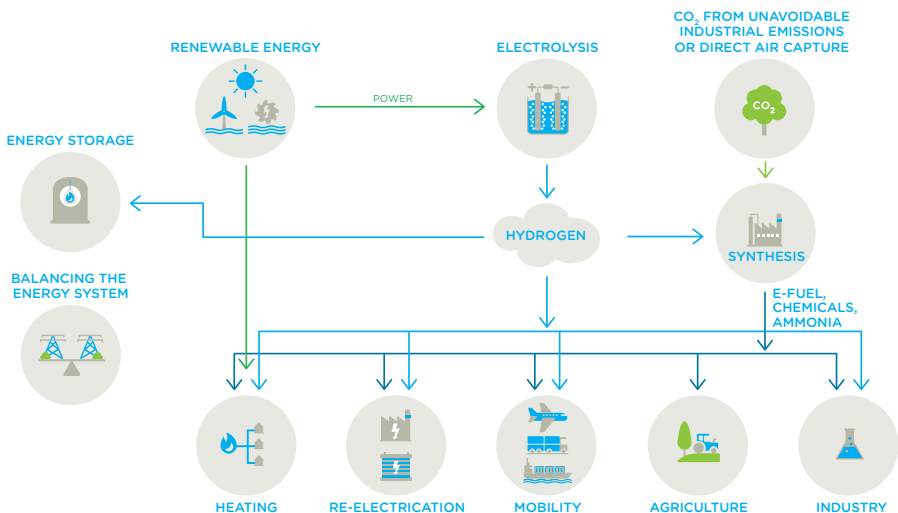
Power-to-X contributes to the solution of several problems that arise when changing from fossil energy sources to green sources such as wind and solar:

- It provides liquid fuels for long distance transport such as planes and ocean-faring ships
- It provides energy storage in periods when batteries and smart grid are not feasible
- It absorbs peak loads of wind and solar, sized to provide average electricity consumption

There are partial solutions using other methods to all three of the above issues. However, Power-to-X is the only one that

solves all three. Therefore, touching on all three aspects should be beneficial for a successful business case for Power-to-X.

At Ramboll, we have a professional team of experts with world-class experience in hydrogen and Power-to-X projects. We provide best practice advice and guidance throughout all phases of hydrogen and Power-to-X projects from inception to feasibility and financial close. We apply a phase-based approach, integrating multidisciplinary services and tailoring each solution to our client's specific needs and challenges.



CARBON CAPTURE AND STORAGE

Carbon capture and storage (CCS) is high on the agenda as part of the solution to the world's climate issues. There is general agreement globally that it will be required to meet the carbon emission reduction targets and the global warming mitigation aspirations of the Paris Agreement.

For the industry sectors that are difficult to electrify green hydrogen produced from renewable power may contribute to the transition either directly or by synthesis of hydrogen and CO₂ to produce new fuels. Carbon will also continue to be required for the production of a range of chemicals and materials. To cover these needs, CO₂ captured from concentrated point

sources may in the future represent a value and an opportunity.

At Ramboll we share the ambition of both those who emit CO₂, those who could potentially store it, those who can deliver renewable energy to convert the carbon to usable products or sustainable fuels and those who are potential off takers of these fuels. We actively engage in this transition by supporting our clients on a range of carbon capture projects in different industries.

AMAGER BAKKE, DENMARK'S FIRST PILOT PLANT FOR CAPTURING CO₂

The pilot plant will form the basis for a full-scale plant that will capture 500,000 tonnes of CO₂ per year in 2025 and will pave the way for commercial use of the technology, not only at Amager Bakke, but potentially also at other waste energy plants in both Denmark and abroad. Ramboll is a partner in the project and has particularly focused on the "net-zero energy" optimisation of the plant, which means that it net produces just as much energy when running with carbon capture as without.



ELECTRIFICATION

Electrification will have a significant impact on the decarbonisation of the energy sector as the production of renewable energy increases all around the globe. In most consumer applications, such as transportation vehicles and space heating, electrical solutions based on renewable energy are more efficient and less energy demanding. Electrification can also contribute to the production of hydrogen and Power-to-X to reduce carbon emissions where direct use of electricity is not feasible, for example in heavy transportation.

Ramboll has extensive expertise in all areas of electrification, assisting with both consultancy services and design. Our competencies within electrification include development of strategies and technical and financial models regarding electrification of new facilities or modernisation of existing ones. We have in-depth experience within conceptual design and layout, lifetime extension and evaluation as well as operation and maintenance services.

We also provide supervision during construction and commissioning and project follow-up after delivery.

Balancing the electricity grid

Wind and solar are infinite energy resources that do not harm the environment, do not produce CO₂, but are blamed for making the electricity grid more unstable and expensive to

operate. Because it is very hard to predict when the sun shines or how hard the wind blows, TSOs are challenged to accurately maintain a balanced frequency of the electricity grid 24 hours a day, seven days a week.

We support our clients by providing solutions that are tailored to the local circumstances. For instance, when wind and solar power generation is out of sync with the current electricity demand, the surplus electricity can be used for heating and cooling by means of large-scale heat pumps. In essence, we design fully integrated electric systems increasing the efficiency, resiliency, and cost effectiveness of renewable energy solutions.

ANCILLARY SERVICES FROM NEW TECHNOLOGIES

A recent report prepared by Ramboll for Danish TSO, Energinet, explores innovative new technologies that have the potential of delivering system services to stabilise the electricity grid when using renewable energy resources.

Based on a selection from the Danish Energy Agency, the report represents a technical screening of innovative new technologies covering not only energy storage such as batteries, but also the production and consumption part of the electricity grid. The latter category includes, among other,

GAS IN THE ENERGY TRANSITION



Owing to the many environmental and societal challenges it delivers on, gas is an integral part of the solutions that can successfully drive the energy transition and is a powerful lever to counter climate change. According to the International Energy Agency (IEA), natural gas is expected to account for 25% of the energy consumption globally by 2035, which means that it will continue to play a critical role in the years to come.

While switching between an unfaltering consumption of fossil fuels does not provide a long-term solution to climate change, gas offers many advantages that makes it the ideal transition fuel to produce the energy capacity that is needed while renewable technologies reach maturity. In addition, the fossil natural gas can in time be replaced by

green gas, using the infrastructure that is already in place.

From coal to gas

Gas-fired power plants can operate at a relatively low cost, have low CO₂ emissions and offer a stable and reliable power supply. The switch from coal to gas is particularly advantageous when the existing infrastructure can be converted to produce the same power output but with lower emissions and is particularly efficient when combined with the production of heat (CHP). Ramboll's expertise includes the full range of competencies to convert or build a new plant, from fuel receipts and logistics to supply of power and heat. We offer specialised engineering services in planning, design and tendering to operation and maintenance of existing and new plants.

GAS IS...

CLEAN, RELIABLE AND AFFORDABLE



Efficient in decarbonising energy and curbing air pollutants.



Flexible energy source that enables variable energy generation using renewable sources such as wind and sun.



Well-positioned to become the **key to competitive prices** in the energy transition. An efficient and cost-effective gas network can transport large amounts of energy, including natural gas, up to five times more power than traditional high-tension transmission lines and at a reduced cost.

SECTOR COUPLING & INTEGRATED ENERGY SYSTEMS

The green transition requires rethinking of our energy system where we link the various elements to create a smart system that is flexible while being robust and affordable.

At Ramboll, we see the energy system as consisting of four energy carriers: The electrical system, the gas network, the district heating network and the district cooling network. Traditionally, the four energy carriers are considered separate and have not been thought together. However, they are connected as different technologies can bring us from one energy carrier to another. Combined heat and power production can for instance bring us from the gas network to the electrical and district heating

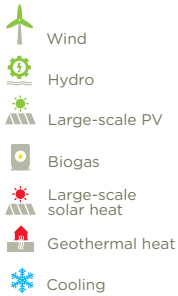
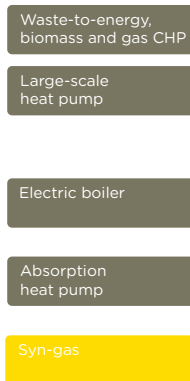
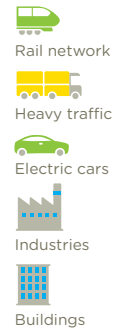
network, and a synthetic gas plant (so-called Power-to-Gas) can convert electricity to gas (e.g. hydrogen).

Therefore, one energy carrier can be used as storage for another, and the four energy carriers can provide flexibility to one another. Other sectors should also be included to increase flexibility, e.g. the dynamic use of batteries in electric cars.

CARBON CAPTURE AND E-FUEL PRODUCTION TO REDUCE GREENLAND'S CO2 FOOTPRINT

A Ramboll study is assessing if the production of e-fuel could be a way to put some of Greenland's plentiful hydro power resources to new use and at the same time reduce the country's CO2 footprint. The e-fuel would be produced using carbon from CO2 captured from the planned waste-to-energy facility in Nuuk. The initial CO2 reduction potential is equivalent to 10% of the emissions from the capital.



SOURCE**STORAGE****CONVERSION****END USERS**

POWER SYSTEM GAS SYSTEM DISTRICT HEATING SYSTEMS DISTRICT COOLING SYSTEMS

A smart energy system requires a holistic view on how energy is produced, consumed and stored across the energy carriers

HOLISTIC ENERGY PLANNING

With our multidisciplinary capabilities we offer our clients a single point of contact for the planning, development and implementation of energy projects globally, and we facilitate the adoption of an integrated energy system based on our thorough knowledge and understanding of the energy life cycle. With our holistic competencies and focus on optimisation across sectors, we provide our clients with solutions that offer greater reliability, reduced costs and less environmental impacts.

District energy

District energy has a crucial role to play in the energy transition as it offers one of the most cost-effective solutions to achieve good air quality and a low carbon future. District energy systems are based on renewable energy and surplus energy from industries and power plants. With the addition of large-scale heat pumps and electric boilers into the energy supply mix, district energy including large-scale thermal storage is now fully integrated with the electricity sector.

Ramboll designs fully integrated electric, thermal and cooling systems for cities and campuses of all sizes, always providing tailored solution to the local circumstances and our clients' needs to guarantee the highest efficiency, resiliency and cost-effectiveness of renewable energy solutions.

Power transmission & distribution

Intelligent power transmission infrastructure is vital for the ability to meet the rising demands for a flexible energy grid and for securing high quality and reliable transport of energy. At Ramboll we focus on delivering solutions that uphold the quality of supply throughout their entire lifetime. Our services range from design of High Voltage (HV) equipment, HV overhead lines and substation automation all the way to offshore platform design and onshore constructions. All of our solutions safeguard the quality of supply throughout their entire lifetime.

Energy storage

With our expertise in energy infrastructure, Ramboll offers the smartest solutions in energy storage to guarantee that our clients can capitalise on surplus energy from renewable sources. Our solutions cover electricity, gas, district heating (hot water) and cooling (cold water), and include a vast range of energy storage technologies, such as heat storage tanks and pits, cold storage tanks, natural gas storage, compressed air in caverns, electric batteries, frequency stabilization, hydro power and pump stores, and steam storage tanks.

RENEWABLE TECHNOLOGIES

Ramboll's energy team provides expertise on the full spectrum of renewable technologies. We provide consulting services on wind energy, solar energy, waste-to-energy, biogas, biomass, hydro power, geothermal energy, and tidal & wave.

DEVELOPMENT OF OFFSHORE WIND STRATEGIC PLAN FOR THE STATE OF NEW JERSEY

Ramboll has been selected by the New Jersey Board of Public Utilities to coordinate and facilitate the development of the State's Offshore Wind Strategic Plan, which sets the most ambitious goal in the U.S. of 3,500 megawatts of offshore wind capacity by 2030. Ramboll is leading a team that includes Stantec Consulting Services Inc., Rutgers Energy Institute Wind Group, BVG Associates LLC, the Business Network for Offshore Wind, InGroup Inc. and Endeavor Fisheries. The strategic plan will guide the development of offshore wind as a renewable energy source in the State.



WIND

Wind energy produces over 2.5% of renewable energy in the world, with an astonishing yearly growth of 25%. Ramboll has been working with wind energy since 1986 and has since then been supporting clients with their wind projects globally. Our team of more than 300 experts is fully knowledgeable in the full range of wind energy technologies, offering specialised consultancy at every phase of the project, from planning and project development to design, procurement and follow-up on operation, maintenance, and decommissioning – both onshore and offshore.

Smarter solutions, greater efficiency

We strive to always be at the forefront of innovation, and therefore, we offer the most advanced and cost-effective digital solutions. For instance, Ramboll has been developing its own digital tools for over three decades to offer the most accurate calculations and solutions for the design, modification and lifetime extension assessments of onshore and offshore steel structures, including wind turbines. We have also been optimising our software in this area through cloud computing solutions to provide a faster, more robust and cloud-based storage and execution platform. And through virtual reality we deliver more realistic and interactive visualisations of our engineering designs and models, while also improving the communication process with the stakeholders involved.

WORLDWIDE EXPERIENCE

Ramboll has completed projects in 21 countries in offshore wind and 60 countries onshore. More than 60% of all offshore wind foundations worldwide rise from foundations designed by Ramboll.

SOLAR

As a renewable source, solar energy is available every day and can be harnessed virtually in any part of the world to generate electricity (solar PV) or heat (solar thermal) with low maintenance costs after installation. As an inexhaustible and clean energy source, its advantages make it one of the fastest growing renewable energy sources. Since 1994, Ramboll has been extensively involved in solar energy projects. Our portfolio showcases over 500 successfully completed small to utility scale solar PV projects as well as large-scale and small-scale solar thermal plants, ranging from 200m² to more than 150,000m². Acting as the Owner's

Engineer, we typically manage our clients' projects and act as the engineer in all technical areas. Our capabilities extend to every phase of solar projects, from technical and economic feasibility studies, tendering and procurement to design, commissioning and follow-up on operation, including performance assessments.

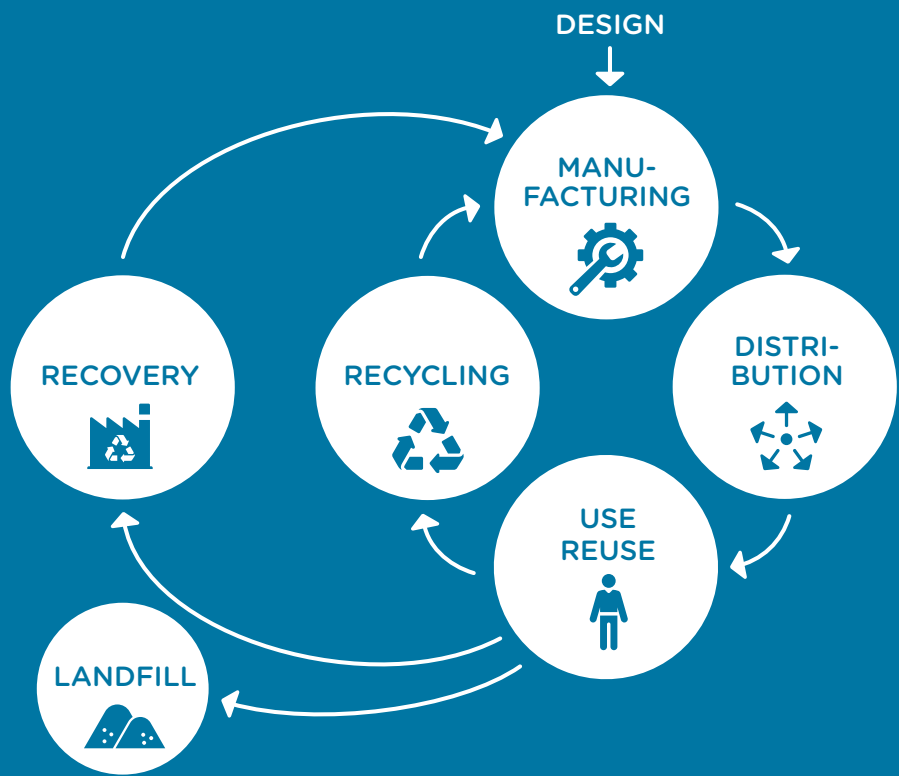


Image by Arcon-Sunmark

RAMBOLL WAS THE CONSULTANT TO THE WORLD'S LARGEST SOLAR THERMAL PLANT

The plant is 150,000 m² and is located in Silkeborg, Denmark. Our solution was based on a symbiosis combining large-scale solar heating, heat storage tanks, gas-fuelled CHP and absorption heat pump, resulting in a power plant with increased efficiency and reduced costs.

CIRCULAR ECONOMY



WASTE-TO-ENERGY

A modern waste-to-energy facility can generate electricity, district heating and cooling, steam for industrial processes and desalinated seawater with reduced carbon emissions and greater environmental performance than many other waste treatment alternatives. Ramboll's team of experts is continuously working towards developing innovative methods and processes to optimise energy production and reduce environmental impacts of waste-to-energy facilities.

Waste in circular economy

Waste that cannot be reused or recycled is often disposed of in landfills, which not only takes up valuable space, but also produces methane and constitutes a health hazard.

However, in a circular economy this waste is treated as a resource to produce heat and electricity and recover materials. Waste-to-energy offers the ideal alternative as it uses resources that have already been consumed in another form to produce energy, while reducing methane emissions from landfills as well as the reliance on fossil fuels. Ramboll has worked on some of the most efficient waste-to-energy facilities in the world that combine high energy efficiency technology with waste reduction and enhanced recycling to generate clean energy from residual waste.

RAMBOLL HELPS BUILD AUSTRALIA'S FIRST LARGE-SCALE WASTE-TO-ENERGY PLANT

The waste-to-energy plant in Kwinana has the potential to reduce CO₂ emissions by 200,000 tonnes per year. It will be capable of processing 400,000 tonnes of waste a year and producing 36 MW of electricity, enough to power up to 50,000 homes. Ramboll has provided consultancy services to Kwinana's waste-to-energy project since 2014 and is now the Owner's Engineer during the implementation of the project.

Globally Leading

Ramboll has worked on waste-to-energy projects in 45 countries, providing consulting services for 155 new units and retrofits.



RAMBOLL'S STUDY CONCLUDES THAT BIOFUEL IS A FEASIBLE ALTERNATIVE IN THE AVIATION INDUSTRY

The aviation industry is responsible for approximately 2% of the global CO₂ emissions. A high growth in traffic towards 2025 is expected, which can potentially lead to increased global warming. According to a Ramboll report elaborated for Avinor, if based on sustainable biomass value chains, new biofuel technologies can replace some of the fossil fuels and help solve today's environmental challenges. The results suggest that it is technically and economically feasible to facilitate a sustainable and renewable

Jet A-1 biofuel production but it requires the development of new technologies. As part of the study, Ramboll conducted meetings and seminars with companies interested in participating in the technology development as well as public agencies, European airlines, environmental interest groups, and research and development institutions from both Norway and overseas. Through these meetings, stakeholders identified challenges and potential solutions relating to the use of biofuel.

BIOGAS

Biogas can be used for the production of low-carbon heat and electricity and can be upgraded for use as a vehicle fuel. Moreover, it can be used in boilers to provide heat only, in combined heat and power plants (CHP) to generate both electricity and heat, or upgraded to biomethane and then injected into the gas network or used as a vehicle fuel. Ramboll has many specialists on these methods, being able to advise our clients on the best course for their biogas projects, including on the development of gas networks for biomethane, in settings where no suitable infrastructure exists already.

Biogas upgrade

Ramboll has been a consultant for a number of biogas upgrade projects, aimed at creating a high-grade renewable fuel and removing the constituents with the potential to corrode or cause mechanical wear to the facility. As there are many available technologies to remove CO₂ which are continually being improved and further developed, it is crucial to select the most appropriate technology for the task, based on plant-specific parameters.

Biogas as a vehicle fuel

A vehicle fuelled by natural gas is not only quieter than engines running on

petrol or diesel but can lead to a carbon emission saving of up to 30%. Moreover, the process of capturing biomethane can result in a 100% reduction in greenhouse gas emission compared to other energy sources. Ramboll has experience in the preconstruction planning, design and inspection of a significant number of vehicle fuelling stations.

Anaerobic digestion of sewage sludge and organic waste

We can assist our clients in their anaerobic digestion (AD) projects the entire project cycle from the pre-study phase, preliminary design, permit applications and EIAs to final design, tendering, supervision, commissioning and performance tests. We have extensive experience in the preparation of AD plant business models, as well as in performing periodical inspections and analysis of risks and operational safety.

BIOMASS

Biomass is used to produce a significant and increasing part of the energy consumed in modern society. While biomass is a limited resource, biomass-fired plants can during the transition period to a fossil-free energy system substantially cut the carbon footprint when sustainable production methods are employed. Sustainable biomass offers a low-carbon alternative to fossil fuels for thermal power and heat generation. It is also a means to ensure reliable and flexible power production, as more and more intermittent renewable energy enters the energy system.

Biomass can be used to produce biogas, heat, electricity or combined heat and power, applying a wide variety of biomass materials including liquid and solid agricultural biomass, wood chips, wastewater treatment residues, energy crops, industrial biomass and even algae. The type of fuel depends on available supplies, price and the size of the bioenergy plant.

Ramboll is one of the most experienced engineering consultancies in the field of biomass, with a track record of delivering over 60 biomass power, heat and CHP facilities, using a full spectrum of fuel types. We specialise in reliable and high-efficiency facilities, with some of the resulting plants using advanced energy recovery systems that allow them to claim energy efficiency rates of more than 100 percent.

From coal to biomass

In addition to developing multiple new biomass power and CHP plants, Ramboll staff pioneered the conversion of coal plants to biomass firing – at a time when there was no experience in the contracting supply chain.

BIO4: TOWARDS CARBON NEUTRALITY IN COPENHAGEN

The City of Copenhagen aims to become the world's first carbon neutral capital by 2025. Greater Copenhagen Utility HOFOR is supporting the City in achieving this goal through several initiatives, including the conversion of Amagerværket power plant from fossil fuels to biomass. Ramboll is Deputy Project Manager, Construction Manager, Commissioning Manager and QA/QC Manager in addition to providing consultancy on the turbine, electrical systems, DCS, risk calculations (HAZOP) and HSE on site.

HYDRO

Hydroelectric power plants have a long economic life, with the advantage of requiring only limited human resources for their operation. Ramboll has over 20 years of experience working in the hydro sector, assisting power companies innovating and streamlining hydro power plants.

We possess specialist competencies within all aspects of hydro power, including competencies in hydraulics, mechanical and electrical engineering, and rock and plant engineering. Based on our in-depth knowledge of hydro power facilities, we design, monitor and ensure the quality of our clients' investments in both retrofits and new hydro power plants. Moreover, we draw

on the latest available technologies and optimisation solutions to advise our clients on how to reach the maximal efficiency of existing facilities. We also carry out inspections in the relevant technology areas.

Considering that safety and security are imperative in all projects, we offer specialist services in safety tasks such as improved sector gates, intake gates and reinforcing dams. In addition, we inspect and ensure the dams, and prepare investment proposals. To enable a more efficient and secure automatic control, we also work on improving electric control equipment.



TECHNICAL DUE DILIGENCE - HYDRO POWER IN ITALY

Ramboll assessed the technical status of 16 hydropower plants for an Italian Power Company, including ponds, waterways, buildings, machinery, control systems, switchgear and network connections. Additionally, the assessment also included an evaluation of the staffing, maintenance work, spare parts handling, facilities availability, safety and environmental risks, as well as production and construction costs.

GEOTHERMAL

Deep geothermal energy is a natural, climate-friendly and renewable energy source produced from geothermal reservoirs in the underground.

Opportunities for exploiting geothermal energy depend on the geological structures and the temperatures of the reservoirs. With over 10 years of experience working with geothermal energy, we can assist our clients in determining the most effective and cost-efficient course of action for their geothermal energy project. Ramboll's expertise extends to the areas of seismic geological and geophysical studies and investigations, including modelling and reservoir hydraulic calculations and evaluations. We also offer specialist knowledge within well site layout/

infrastructure and permission, as well as follow-up on operation and maintenance.

FEASIBILITY STUDY OF GEOTHERMAL ENERGY FOR DISTRICT HEATING, SPAIN

Santa Coloma de Gramenet, a municipality in Catalonia, is a city of 120,000 inhabitants and a dynamic commercial sector. During the civil works for one of the tunnels of the underground of Barcelona Metropolitan Area, a source of hot water was found. Ramboll is assisting the municipality in evaluating possible technical solutions and business models for the use of this shallow geothermal source in combination with a potential new district heating system to supply heat to up to 50 public buildings, amenities and industry in the municipality.

A-Z PROJECT SUPPORT

Ramboll offers a wide range of services on geothermal energy district heating plants from planning and project development to design, implementation and follow-up on operation and maintenance.

TIDAL & WAVE

Tidal and wave energy is a largely unused natural resource with a great energy potential. Apart from being a clean energy source with zero greenhouse emissions, the high and low tide cycles can be calculated and predicted with fair precision, providing the right basis for our engineers to design efficient systems in comparison with other energy sources. Moreover, Ramboll has all the competencies needed to assist our clients developing their tidal and wave projects proved by a long track record of inventive and innovative designs in the marine environment.



INNOVATIVE TECHNOLOGY EXPLORES TIDES AS A RENEWABLE ENERGY SOURCE

Ramboll assisted Swedish Minesto in implementing PowerKite, a project under the European Union's Horizon 2020 research and innovation programme. Ramboll helped with the roll out of a technology that converts waves and tides into renewable energy, which included the design suggestions for the power take-off system of Minesto's power plant at sea and its grid connection on shore. We were responsible for a broad range of services from offshore and electrical engineering to health & safety.



Ramboll is a leading engineering, design and consultancy company founded in Denmark in 1945. The company employs 16,500 working from 300 offices in 35 countries and has especially strong representation in the Nordics, UK, North America, Continental Europe, Middle East and Asia Pacific. Ramboll is at the forefront of addressing the green transition and offers a holistic approach to energy that supports the sector on the journey towards more sustainable solutions.